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Remarks:
This application was filed on 29-10-2010 as a divisional application to the application mentioned under INID code 62.

(54) A luminaire reflector locating arrangement

(57) The present invention discloses improvements relating to luminaires having doubly arched reflectors. One such improvement so is a locating mechanism having mushroom shaped lugs (107) which engage with keyhole shaped apertures (127) which enables two leaves (102, 122) of the reflector (101) to be easily and quickly joined together.

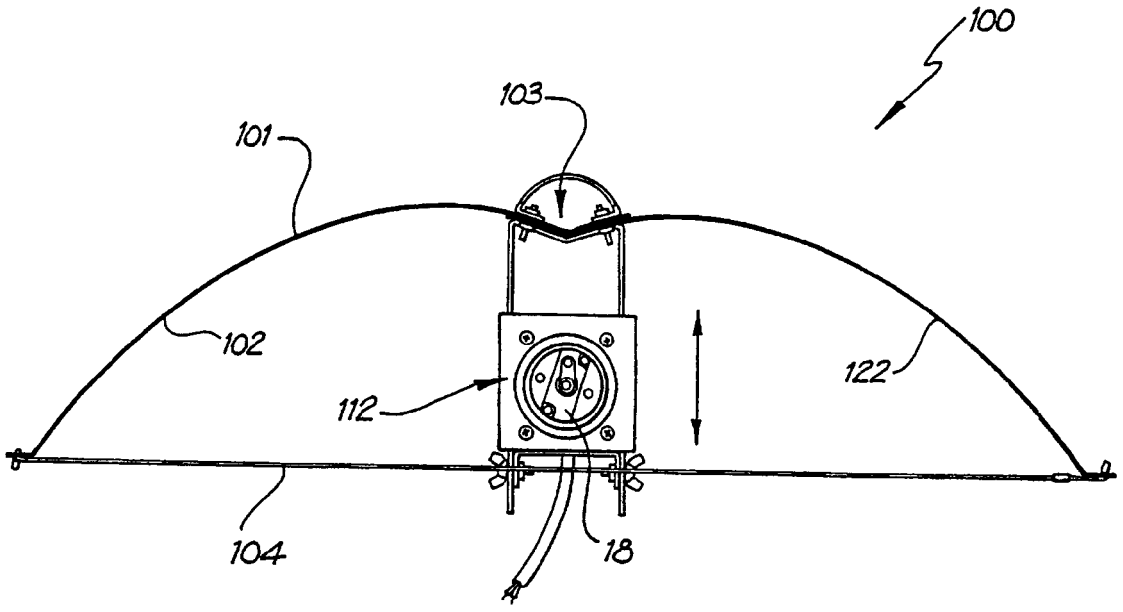

FIG. 2

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Description

TECHNICAL FIELD

[0001] The present invention relates to luminaires and, in particular, to luminaries having a reflector of adjustable focal length including two curved portions. Such a reflector is described in WO 96/37732 (which has the same inventor as the present application) and will hereafter be termed a doubly arched reflector.

[0002] The above described luminaire is normally sold in knockdown form and is assembled by the purchaser. Hitherto, this assembly process has been relatively time consuming because of the large number of bolts, nuts and like fasteners which must be assembled.

GENESIS OF THE INVENTION

[0003] The genesis of the present invention is a desire to provide an arrangement whereby such a luminaire can be assembled in a more convenient fashion.

SUMMARY OF THE INVENTION

[0004] In accordance with a first aspect of the present invention, there is disclosed a locating mechanism for a pair of reflector sheets from which the reflector of a doubly arched luminaire is assembled, characterized in that said mechanism comprises at least one mushroom-shaped stud on one of said sheets and a corresponding keyhole shaped aperture on the other of said sheets, said stud comprising a stalk and a cap and said aperture comprising a main opening and a smaller extension wherein each said stud and aperture are dimensioned so that said cap can pass through said main opening but not said extension and said stalk can be retained in said extension with a friction fit.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Embodiments of the present invention will now be described with reference to the drawings in which:

- Fig. 1 is an exploded perspective view of a prior art luminaire of the doubly arched reflector type,
- Fig. 2 is an end elevation of the luminaire of the preferred embodiment,
- Fig. 3 is a partial schematic exploded perspective view illustrating how two sheets can be brought together to form the reflector,
- Fig. 4 is an enlarged fragmentary side elevational view of a portion of Fig. 3, and
- Fig. 5 is a partial perspective view showing the two sheets assembled to form the reflector.

DETAILED DESCRIPTION

[0006] As seen in Fig. 1, the reflector 1 of the prior art is formed from two sheets 2 preferably of resilient metal construction which are joined together about a spine 3 in the manner of the pages of a book. A tensioning device in the form of a chain 4 and hooks 5 is used to provide the desired adjustment of the focal length of the reflector 1.

[0007] The remaining components of the luminaire are essentially a lamp socket mounting 12 which supports the lamp socket 18 which in turn supports the lamp 20. If desired, a heat shield 17 having perforations 30 can be provided.

[0008] It will be apparent to those skilled in the art that the means by which the lamp socket mounting 12 is held in position are cumbersome and require considerable adjustment to ensure that the longitudinal axis of the lamp 20 is parallel to the longitudinal axis of the reflector 1. Furthermore, the chain 4 whilst being practical is a relatively expensive method of ensuring that the required tension in the reflector is achieved. In addition, because of the tendency of the chain 4 to collapse unless placed under tension, many purchasers find it awkward to interengage the hooks 5 and the links of chain 4.

[0009] Turning now to Figs 2-5, the luminaire 100 of the preferred embodiment is illustrated having a reflector 101 formed from two sheets 102 and 122 essentially as before with a lamp socket mounting 112 and a pair of tensioning filaments 104 (only one of which is illustrated in Fig. 2). The sheets 102, 122 are supplied in a compact knock down form stacked one above the other and are then joined together to form a spine 103.

[0010] As seen in Figs. 3 and 4, the sheet 122 is provided with a pair of generally mushroom shaped lugs 107 which each have a central cylindrical stalk 108 and a substantially flat cap 109. Conversely, the reflector sheet 102 is provided with a pair of keyhole apertures 127 each of which has a central opening 128 and a narrow extension 129 extending therefrom. The extensions 129 are substantially parallel. In addition, the portions of the sheets 102, 122 which are joined together to form the spine 103 each include four holes 111.

[0011] In order to move from the unassembled position illustrated in Fig. 3 to the assembled position illustrated in Fig. 5, the caps 109 of the lugs 107 are passed through the central openings 128 of the corresponding keyhole apertures 127. This generally locates the two sheets 102, 122 in the correct orientation and configuration. Then the sheets 102, 122 are moved relative to each other in the direction of the spine 103 so as to engage the stalks 108 with the corresponding extensions 129. This results in a friction fit between the lugs 107 and the keyhole apertures 127. The friction fit may be between the stalk 108 and the extension 129, or between the underside of the caps 109 and the surface of the sheets 102, 122, or both.

[0012] The end result is the configuration illustrated in Fig. 5 where the holes 111 in the two sheets 102, 122 are aligned. This enables arcuate hanging supports 114 to be secured to the reflector 101 by means of fasteners 115 as illustrated in Fig. 5.

[0013] The foregoing describes only one embodiment of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention.

[0014] The term "comprising" (and its grammatical variations) as used herein is used in the inclusive sense of "having" or "including" and not in the exclusive sense of "consisting only of'.

Claims

1. A locating mechanism for a pair of reflector sheets (102) from which the reflector (101) of a doubly arched luminaire (100) is assembled, **characterized in that** said mechanism comprises at least one mushroom-shaped stud (107) on one of said sheets and a corresponding keyhole shaped aperture (127) on the other of said sheets, said stud comprising a stalk (108) and a cap (109) and said aperture comprising a main opening (128) and a smaller extension (129) wherein each said stud and aperture are dimensioned so that said cap can pass through said main opening but not said extension and said stalk can be retained in said extension with a friction fit.

2. The mechanism as claimed in claim 1 wherein one of said reflector sheets has a plurality of spaced apart mushroom studs (107) and the other of said reflector sheets has a like plurality of like spaced keyhole apertures (127), the smaller extensions (129) of said apertures being substantially parallel and like aligned.

3. The mechanism as claimed in claim 1 or 2 wherein said friction fit is between said extension (129) and said stalk (108).

4. The mechanism as claimed in claim 1 or 2 wherein said friction fit is between the surface of said reflector (102) adjacent said extension and said cap (109).

5. The mechanism as claimed in claim 1 or 2 wherein said friction fit is between said extension (129) and said stalk (108) and between the surfaces of said reflector (102) adjacent said extension and said cap.

6. A luminaire incorporating a locating mechanism as claimed in any one of claims 1-5.

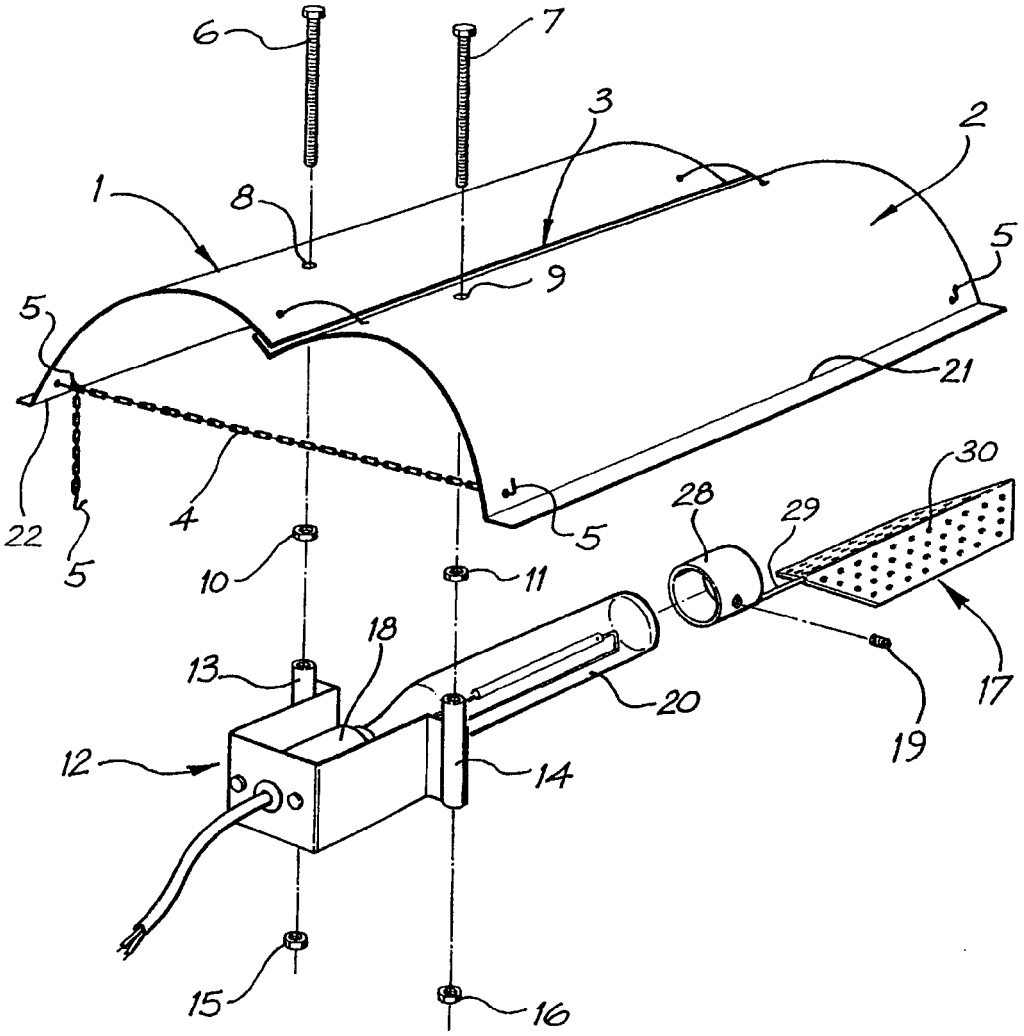

FIG. 1
PRIOR ART

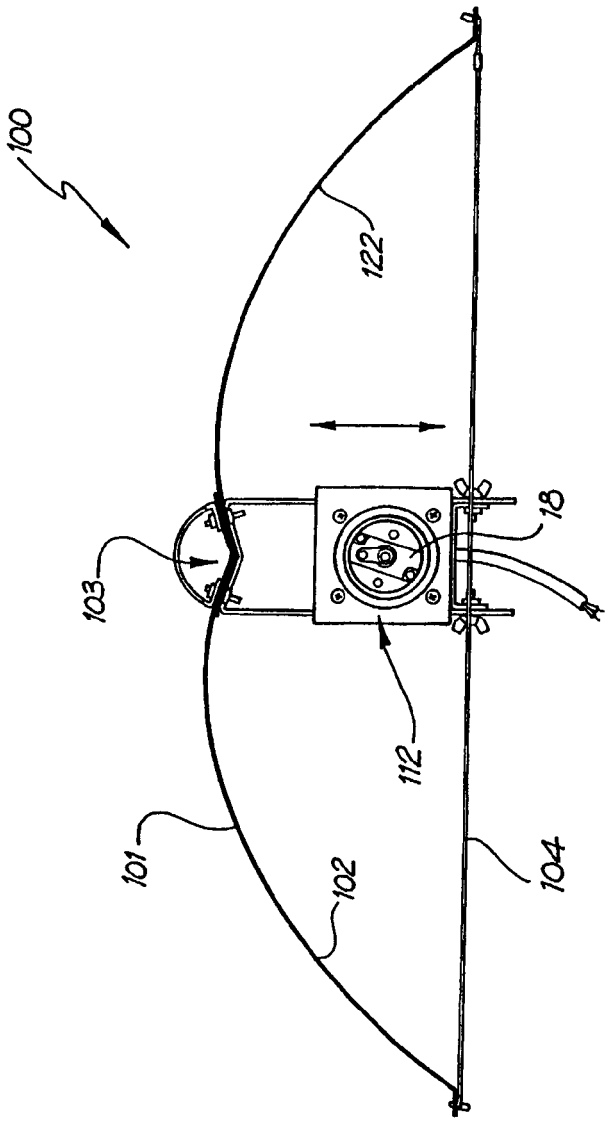

FIG. 2

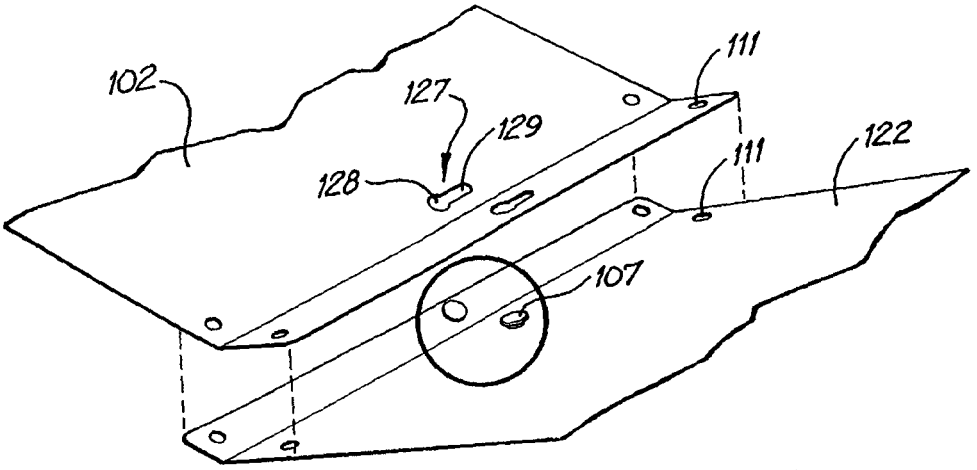

FIG. 3

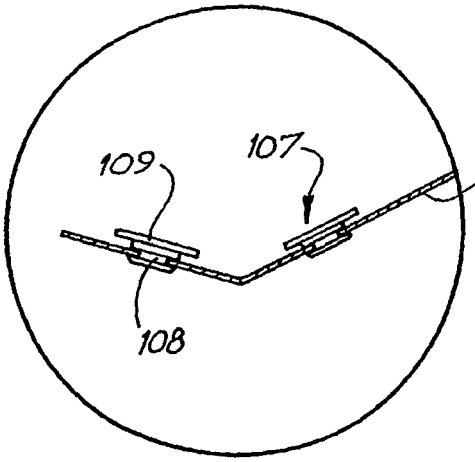

FIG. 4

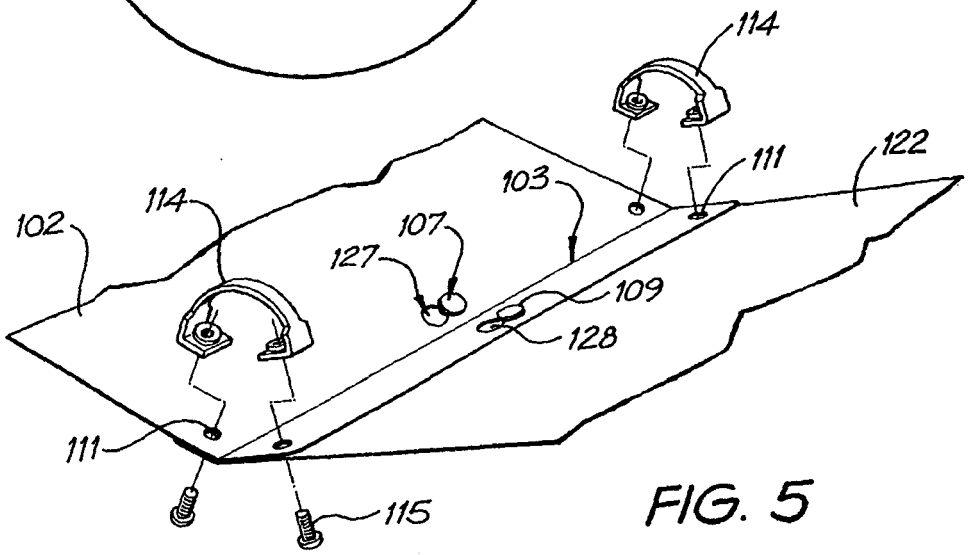

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 10 18 9391

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 6 053 624 A (CRONK PAUL ANDREW [AU]) 25 April 2000 (2000-04-25) * column 2, line 16 - column 3, line 30 * * figures 1-3 * -----	1-6	INV. F21V7/18
Y	DE 35 19 498 A1 (SCHAEFFLER WOLFGANG) 4 December 1986 (1986-12-04) * page 11, line 1 - page 14, line 6 * * figures 1-6 * -----	1-6	
A	DE 32 44 516 A1 (FRAENKISCHE LEUCHTEN GMBH [DE]) 7 June 1984 (1984-06-07) * page 9, line 6 - page 12, line 15 * * figures 1-4 * -----	1	

TECHNICAL FIELDS SEARCHED (IPC)

F21V

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	4 April 2011	Blokland, Russell

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 10 18 9391

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04-04-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6053624 A	25-04-2000	AT 334340 T	15-08-2006
		AU 716550 B2	02-03-2000
		AU 2441695 A	11-12-1996
		AU 759725 B2	17-04-2003
		AU 679737 B2	10-07-1997
		AU 6480094 A	25-05-1995
		WO 9637732 A1	28-11-1996
		AU 2008258143 A1	08-01-2009
		AU 2008258166 A1	15-01-2009
		AU 2010200781 A1	25-03-2010
		AU 2010200796 A1	25-03-2010
		BR 9510600 A	30-11-1999
		CA 2221816 A1	28-11-1996
		CA 2509467 A1	28-11-1996
		DE 69535134 T2	05-07-2007
		EP 0870154 A1	14-10-1998
		ES 2270428 T3	01-04-2007
		JP 11505951 T	25-05-1999
		JP 3667344 B2	06-07-2005
		NZ 285349 A	23-12-1998
DE 3519498 A1	04-12-1986	NONE	
DE 3244516 A1	07-06-1984	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 9637732 A **[0001]**